

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

- Group I        claim(s) 1-6, drawn to **catalyst carrier**.
- Group II       claim(s) 15-23, drawn to **catalyst precursor**.
- Group III       claim(s) 24-25, drawn to **process** for the preparation of a catalyst.
- Group IV       claim(s) 26, drawn to an **activated catalyst**
- Group V       claim(s) 27, drawn to **process** for the preparation of hydrocarbons.
- Group VI       claim(s) 28, drawn to **process** for the preparation of middle distillate products.

The inventions listed as Groups I - VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: claims are drawn to catalyst carrier, catalyst precursor, process for the preparation of hydrocarbons and process for the preparation of the middle distillate product. The common feature among all these groups is the titania catalyst.

The question of unity of invention has been reconsidered retroactively by the examiner in view of the search performed; a review of US4751345 ( June 14, 1988) and

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US4670475 (June 2, 1987) both by Mauldin et al make clear that the inventions of the groups I-VI lack the same or corresponding special technical feature because the cited reference(s) appear to demonstrate that the claimed technical feature does not define a contribution which each of the inventions, considered as a whole, makes over the prior art. Accordingly, the prior art of the record supports restriction of the claimed subject matter in to the groups as mentioned immediately above.

2. During a telephone conversation with **Attorney Craig Lundell** (713 241 2475) on 09/18/2008 a provisional election was made **with** traverse to prosecute the invention of **Group I, claims 1 through 6**. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-23, 24-25, 26, 27 and 28 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder.

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All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

### ***Status of Application***

The claims 1-28 are pending and the elected claims 1-6 presented for the examination. The non-elected claims 15-28 are withdrawn from the consideration.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claim 1, 2-4 and 6** are rejected under 35 U.S.C. 102(b) as being anticipated by **Abe et al** (US Patent No. 4,113,660 Sept. 12, 1978).

Abe discloses the following:

- production of shaped catalyst or carriers comprising titanium oxide as the main ingredient (Col 1 line 6, Col 2 line 3);
- a shaped product (Col 1 lines 33-34);
- the three known forms of titanium oxide i.e. rutile, brookite and anatase are all utilizable (Col 5 lines 3-4);
- catalyst or carrier with or without coating (Col 2 line 53, Col 3 line 10);
- 1 to 100% by weight (as titanium oxide) based upon the weight of the catalyst or the carrier (Col 3 lines 6-7).

**Regarding applicant claims 2, 3 and 4, Abe** discloses that three known forms of titanium oxide i.e. rutile, brookite and anatase are all utilizable (Col 5 lines 3-4) and in the range of 1 to 100% by weight (as titanium oxide) based upon the weight of the catalyst or the carrier (Col 3 lines 6-7).

**Regarding applicant claims 6, Abe** discloses binder (Col 2 line 28); Abe further discloses 1 to 100% by weight (as titanium oxide) based upon the weight of the catalyst or the carrier (Col 3 lines 6-7).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Abe et al** (US Patent No. 4,113,660 Sept. 12, 1978) as applied to claims **1, 2-4 and 6** above, and further in view of **Pottier** et al (Journal of Materials Chemistry, 2001, 11, pages 1116-1121).

**Abe** teaches the three forms of titania and production of catalyst including the shaped catalyst with a binder (Col 2, line 29) and having a coating (Col 2, line 53).

**Abe** does not teach the particle size of the titania catalyst.

**Pottier** teaches the synthesis of titania catalyst (brookite) in the size range of 10 to 100 nm (Fig 5 a, b, c).

At the time of invention it would have been obvious to a person of ordinary skill to synthesize the titania catalyst (**Abe's** teaching) utilizing the nano size particles (**Pottier's** teaching). The suggestion or motivation for doing so would have been to enhance the catalyst reactivity since nano size particles provide large catalyst surface area desirable for catalyst functionality.

***Conclusion***

1. No claim is allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to BIJAY SAHA whose telephone number is (571) 270-5781. The examiner can normally be reached on Monday- Friday 8:00 a.m. EST - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571 272 0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bijay Saha  
October 10, 2008  
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/Vickie Kim/  
Supervisory Patent Examiner, Art Unit 4181